

Application No. 09/811,389
Amendment under 37 CFR 1.111
Reply to Office Action dated April 23, 2003
October 23, 2003

AMENDMENTS TO THE CLAIMS

Please cancel claims 1-10 without prejudice or disclaimer of the subject matter therein.

Please substitute claims 11, 15-17, 19, 21 and 23-25 for the pending claims with the same numbers respectively:

Claims 1-10 (Cancelled) :

Claim 11 (Currently amended): A photographic printer including comprising:

a laser beam scanner, including:

a first laser light source for oscillating and emitting a red laser beam;

a second laser light source for oscillating and emitting a green laser beam;

a third laser light source for oscillating and emitting a blue laser beam;

a conveyor for linearly conveying a photographic paper to a predetermined scanning plane of the laser beam scanner and a developer for developing a latent image exposed on the

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~~photographic paper by the laser beam scanner; wherein the laser beam scanner comprising:~~

~~a first laser light source for oscillating and emitting a red laser beam;~~

~~a second laser light source for oscillating and emitting a green laser beam;~~

~~a third laser light source for oscillating and emitting a blue laser beam; at a predetermined constant speed;~~

~~an optical scanning system for scanning the laser beams on the predetermined scanning plane coinciding with a surface of a photographic paper when being conveyed thereto; and~~

~~an optical paths path adjusting system for adjusting optical paths of the optical scanning system, including:~~

~~a position sensor disposed on a plane optically conjugated with a plane corresponding to the photographic paper at the predetermined scanning plane; and ;~~

~~a first adjuster for adjusting an optical path of the first laser beam; and~~

~~a second adjuster for adjusting an optical path of the second laser beam; and ;~~

~~a third adjuster for adjusting an optical path of the third laser beam; and~~

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a developer for developing a latent image exposed on the photographic paper by the laser beam scanner.

Claim 12 (Original): The photographic printer in accordance with claim 11, wherein the optical scanning system includes a beam splitter for splitting the laser beams in a first way for introducing the laser beams toward the scanning plane and a second way for introducing split laser beams toward the position sensor.

Claim 13 (Original): The photographic printer in accordance with claim 11, wherein the optical scanning system includes a total reflection mirror for reflecting the laser beam toward the scanning plane and withdrawal while the optical paths are adjusted.

Claim 14 (Original): The photographic printer in accordance with claim 11, wherein the optical paths adjusting system further includes a monitor display for displaying the positions of the laser beams on the position sensor.

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Claim 15 (Currently amended): The photographic printer in accordance with claim 11, wherein ~~the adjuster~~ each of the adjusters is a mirror provided in the optical scanning system and manually rotatable around an axis for adjusting a reflection angle of the laser beam.

C'mt
Claim 16 (Currently amended): The photographic printer in accordance with claim 15, wherein the optical scanning system includes a polygon mirror rotating at a constant rotation speed, and ~~the adjuster~~ each of the adjusters is disposed between the laser light sources and the polygon mirror.

Claim 17 (Currently amended): The photographic printer in accordance with claim 11, wherein ~~the adjuster~~ each of the adjusters is a mirror provided in the optical scanning system and rotated around an axis by an actuator for adjusting a reflection angle of the laser beam.

Claim 18 (Original): The photographic printer in accordance with claim 17, wherein the optical paths adjusting system further includes a processor for calculating a quantity of displacement between the positions of the laser beams on the position sensor,

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and for controlling the actuator for coinciding the positions of the laser beams by using the calculated quantity of the displacement.

Cⁿ cont. • Claim 19 (Currently amended): The photographic printer in accordance with claim 17, wherein the optical scanning system includes a polygon mirror rotating at a constant rotation speed, and ~~the adjuster~~ each of the adjusters is disposed between the laser light sources and the polygon mirror.

Claim 20 (Original): The photographic printer in accordance with claim 11, wherein the laser light sources respectively emit laser beams having the wavelengths corresponding to three primary colors or complementary colors thereof.

Claim 21 (Currently amended): A photographic printer comprising:

a laser beam scanner comprising including:

 a first laser light source for oscillating and emitting a red laser beam;

 a second laser light source for oscillating and emitting a green laser beam;

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a third laser light source for oscillating and emitting a blue laser beam;

a conveyor for linearly conveying a photographic paper to a predetermined scanning plane of the laser beam scanner at a predetermined constant speed:

an optical scanning system for scanning the laser beams on a *COPY* the predetermined scanning plane coinciding with a surface of a the photographic paper when being conveyed thereto; and

an optical path adjusting system for adjusting optical paths of the optical scanning system, including:

a position sensor disposed on a plane optically conjugated with a plane corresponding to the photographic paper at the predetermined scanning plane, and

a first adjuster for adjusting an optical path of the first laser beam and ;

a second adjuster for adjusting an optical path of the second laser beam and ;

a third adjuster for adjusting an optical path of the third laser beam, wherein

said first adjuster is a mirror provided in the optical scanning system and rotatable around two different axes for adjusting a reflection angle of the first laser beam and

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said second adjuster is a mirror provided in the optical scanning system and rotatable around two different axes for adjusting a reflection angle of the second laser beam and said third adjuster is a mirror provided in the optical scanning system and rotatable around two different axes for adjusting a reflection angle of the third laser beam; and
a developer for developing a latent image exposed on the photographic paper by the laser beam scanner.

Claim 22 (Cancelled) :

Claim 23 (Currently amended) : A photographic printer comprising:

a laser beam scanner comprising including:

 a first laser light source for oscillating and emitting a red laser beam;
 a second laser light source for oscillating and emitting a green laser beam;

 a third laser light source for oscillating and emitting a blue laser beam;

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a conveyor for linearly conveying a photographic paper to a predetermined scanning plane of the laser beam scanner at a predetermined constant speed;

an optical scanning system for scanning the laser beams on a the predetermined scanning plane coinciding with a surface of a the photographic paper when being conveyed thereto; and

an optical path adjusting system for adjusting optical paths of the optical scanning system, including:

a position sensor disposed on a plane optically conjugated with a plane corresponding to the photographic paper at the predetermined scanning plane, and

a first adjuster for adjusting an optical path of the first laser beam; and

a second adjuster for adjusting an optical path of the second laser beam; and

a third adjuster for adjusting an optical path of the third laser beam; and ;

a monitor display for displaying images corresponding to the relative positions of the first laser beam and the second laser beam on the position sensor and said monitor display is detachable from the optical path system; and

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a developer for developing a latent image exposed on the photographic paper by the baser beam scanner.

Claim 24 (Currently amended): A photographic printer comprising:

a laser beam scanner comprising including:

a first laser light source for oscillating and emitting a red laser beam;

a second laser light source for oscillating and emitting a green laser beam;

a third laser light source for oscillating and emitting a blue laser beam;

a conveyor for linearly conveying a photographic paper to a predetermined scanning plane of the laser beam scanner at a predetermined constant speed;

an optical scanning system for scanning the laser beams on a the predetermined scanning plane coinciding with a surface of a photographic paper when being conveyed thereto; and

an optical path adjusting system for adjusting optical paths of the optical scanning system, including:

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a position sensor disposed on a plane optically conjugated with a plane corresponding to the photographic paper at the predetermined scanning plane, and ;

a first adjuster for adjusting an optical path of the first laser beam; and

a second adjuster for adjusting an optical path of the second laser beam; and

a third adjuster for adjusting an optical path of the third laser beam, and ;

a monitor display for displaying images corresponding to the relative positions of the first laser beam and the second laser beam on the position sensor; and

a developer for developing a latent image exposed on the photographic paper by the laser beam scanner.

C'nt.
Claim 25 (Currently amended): A photographic printer comprising:

a laser beam scanner comprising including:

a first laser light source for oscillating and emitting a red laser beam;

a second laser light source for oscillating and emitting a green laser beam;

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a third laser light source for oscillating and emitting a blue laser beam;

a conveyor for linearly conveying a photographic paper to a predetermined scanning plane of the laser beam scanner at a predetermined constant speed;

an optical scanning system for scanning the laser beams on a the predetermined scanning plane coinciding with a surface of a photographic paper when being conveyed thereto; and

an optical path adjusting system for adjusting optical paths of the optical scanning system, including:

a position sensor disposed on a plane optically conjugated with a plane corresponding to the photographic paper at the predetermined scanning plane;

a first adjuster for adjusting an optical path of the first laser beam;

a second adjuster for adjusting an optical path of the second laser beam; and

a third adjuster for adjusting an optical path of the third laser beam, whereby all the positions of the laser beams can be adjusted to overlap at a certain point on the predetermined scanning plane; and

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a developer for developing a latent image exposed on the photographic paper by the laser beam scanner.

Claim 26 (New) : A photographic printer comprising:
an exposure unit includes a magazine and a laser beam scanner;

 said magazine containing a roll of photographic paper, a cutter for cutting the photographic paper into a predetermined size of a photographic paper sheet;

 said laser beam scanner including:

 a first laser light source for oscillating and emitting a red laser beam;

 a second laser light source for oscillating and emitting a green laser beam;

 a third laser light source for oscillating and emitting a blue laser beam;

 a conveyor for linearly conveying the photographic paper sheet to a predetermined scanning plane of the laser beam scanner at a predetermined constant speed;

 an optical scanning system for scanning the laser beams on the predetermined scanning plane coinciding with a surface of a photographic paper sheet when being conveyed thereto;

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an optical path adjusting system for adjusting optical paths of the optical scanning system, including:

a position sensor disposed on a plane optically conjugated with a plane corresponding to the photographic paper at the predetermined scanning plane;

a first adjuster for adjusting an optical path of the first laser beam;

a second adjuster for adjusting an optical path of the second laser beam;

a third adjuster for adjusting an optical path of the third laser beam; and

a developer for developing a latent image exposed on the photographic paper by the laser beam scanner; and

a dryer for drying the photographic paper.